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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,960	06/17/2005	Thomas Domschke	12810-00102-US	6817

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EXAMINER
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CHO, JENNIFER Y

ART UNIT	PAPER NUMBER
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1621

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/17/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/539,960

Applicant(s)

DOMSCHKE ET AL.

Examiner

Jennifer Y. Cho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/2005, 6/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **Detailed Action**

- 1 This office action is in response to Applicant's communication filed on 8/25/2006.  
Claims 1-17 are pending in this application.

### **IDS**

- 2 The information disclosure statements (IDS) were filed on 10/24/2005 and 6/17/2005. The submissions are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

### **Claim Rejections – 35 USC 103**

- 3 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins et al. (US Patent Publication 2002/0026077), in view of Eyal et al. (US 6,172,242), further in view of Dodge et al. (US Patent Publication US 2003/0040086).

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4 Collins et al. teaches a process for extracting 2-keto-L-gulonic acid (KGA or KLG) from a polar solvent comprising ascorbic acid (page 2, section 40 and 44) and 2-keto-L-gulonic acid (page 2, section 41), in which the 2-keto-L-gulonic acid can be further reacted in an esterification or lactonization process (page 2, section 29, lines 8-9).

5 Collins et al. is deficient in the sense that it does not teach an extractant with a tertiary amine, a diluent that is an alcohol and Applicant's particular extraction steps of back-extraction and recycling.

6 Eyal et al. teaches the extraction of an ascorbic acid intermediate/isomer similar to 2-keto-L-gulonic acid, which is erythorbic acid (abstract; column 1, line 14). The extractant comprises a tertiary amine in which the aggregate number of carbon atoms is at least 20 (column 10, lines 47-49) and a polar organic diluent which includes alcohols (alkanols) (column 7, lines 19-20), specifically octanol (column 7, lines 48-50) and the solvent is aqueous (abstract). The ratio of tertiary amine to the diluent (octanol) falls in the ranges of 20:80 to 80:20 (column 7, table 2; column 8, table 2 continued; column 16, lines 61-62).

7 Furthermore, Eyal et al. teaches the back-extraction (stripping) of the ascorbic acid intermediate from the extractant with another polar extractant of similar solvent components, in which the back-extraction temperature is at elevated temperatures in comparison to the extraction temperature (column 5, lines 16-19; column 10, lines 33-37; 41-67). In addition, the extractant is recycled back to the extraction step, which can be concentrated, to give near complete extraction and isolation of the product (column 13, lines 1-2; column 16, lines 61-67).

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8 Dodge et al. teaches the equivalency of 2-keto-L-gulonic acid and erythorbic acid (page 18, claim 6).

9 In reference to Applicant's particular amine and alcohol diluent, it is the position of the examiner that one of ordinary skill in the art, at the time of the invention, would through routine and normal experimentation determine the optimization of these limitations to provide the best effective variable depending on the results desired. Thus it would be obvious in the optimization process to optimize the particular amine and alcohol. The applicant does not show any unusual and/or unexpected results for the limitations stated. Note that the prior art provides the same effect desired by applicant, a process for extracting 2-keto-L-gulonic acid.

10 Therefore, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention to substitute Eyal et al. and Dodge et al.'s teaching of extracting with a tertiary amine, an alcohol diluent that is an alcohol and the back-extraction and recycling steps, for Collins et al.'s extraction of 2-keto-L-gulonic acid. The expected result would be the efficient extraction of 2-keto-L-gulonic acid from a solution of ascorbic acid.

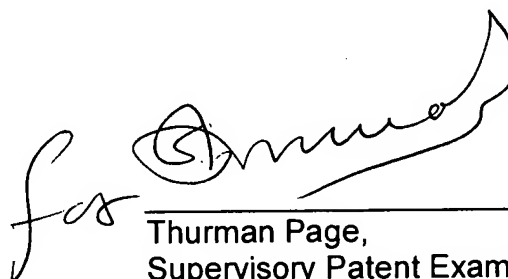
11 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Y. Cho whose telephone number is (571) 272 6246. The examiner can normally be reached on 9 AM - 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on (571) 272 0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer Cho  
Patent Examiner  
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A handwritten signature in black ink, appearing to read 'Thurman Page', is written over a horizontal line. The signature is stylized with a large, looped 'P' and a long, sweeping underline.

Thurman Page,  
Supervisory Patent Examiner  
Technology Center 1600